# DOCUMENT RESUME

ED 154 800 IR 005 895

TITLE CAI Administrative Guide.
INSTITUTION Education Service Center Region 4, Houston, Tex.
PUB DATE 77
NOTE 21p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Adult Basic Education; *Computer Assisted Instruction; *Educational Administration; *Educational Planning; Educational Technology; Elementary Education; Guidelines; High School Equivalency Programs; *Individualized Instruction; Instructional Technology; Programed Materials; Teaching Methods

ABSTRACT

This guide provides information for those administrators considering the installation of terminals for computer assisted instruction in their schools or districts. Some specific information relating to computer assisted instructional programs provided for the region known as the Gulf Texas Multi-Regional Processing Center is given. Issues discussed include: (1) organizing for implementation, (2) lab location and terminals, (3) benefits and responsibilities of the system, (4) student scheduling and attendance, (5) inservice preparation for teachers, (6) public relations, and (7) support services. (STS)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED154800

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

# CAI ADMINISTRATIVE GUIDE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Pat Sturdivant

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

IR005 895

## Table of Contents


| | Page |
|---|---|
| What is the Curriculum? | 1 |
| How Does it Work? | 2 |
| How Does it Help Overworked Teachers? | 3 |
| How Does it Individualize? | 4 |
| It Adds Up! | 5 |
| Organizing for CAI Implementation | 6 |
| Responsibilities | 7 |
| Lab Location | 8 |
| Terminals | 9 |
| Student Scheduling | 10 |
| Student Attendance | 11 |
| Orientation for Administrators | 12 |
| Inservice for Teachers | 13 |
| Public Relations | 14 |
| Support Services | 15 |
| Current Users | 16 |


**1977**

# Administrator's Guide To Computer Assisted Instruction



The computer has been described as the ultimate in instructional technology. Computer Assisted Instruction, commonly abbreviated as CAI, is the term used to describe the use of the computer in the classroom. In CAI a computer program attempts to simulate a human tutor by presenting the student with curriculum to which he interacts conversationally.

## What Is The Curriculum?

Region IV Education Service Center cooperates with Computer Curriculum Corporation to make Computer Assisted Instruction available to school districts in Regions IV, V, and VI, an area known as the Gulf Texas Multi-Regional Processing Center (MRPC).

## Programs available include:

- Elementary Reading, Grades 3-6
- Elementary Language Arts, Grades 3-6
- Elementary Mathematics, Grades 1-6
- Elementary Mathematics in Spanish, Grades 1-6
- GED Preparation
- Adult Basic Education

The computer is not being used to replace classroom teachers. The emphasis is on the word ASSISTED.

# How Does It Work?

- Students receive supplementary drill and practice instruction by working at a CAI terminal for 10-20 minutes each day.

- Terminals are usually placed in a central laboratory where students obtain individualized reinforcement in the basic skills.

- In a typical school day about 25 children can be served by each terminal. A lab with 15 terminals could support instruction for 375 students daily.

* * * *

Make three correct guesses consecutively and you will establish a reputation as an expert.

* * * *

# How Does It Help Overworked Teachers? 3

In an individualized instruction program, the teacher must diagnose a student's performance, prescribe appropriate work, and continuously evaluate performance. The computer has the potential to help the teacher implement diagnostic-prescriptive instruction because it:

- Identifies the proper level of instruction
- Pinpoints skill deficiencies
- Prescribes appropriate drill and practice exercises
- Maintains continuous records
- Keeps track of student performance.

The supplementary curriculum is offered primarily to *support*, not supplant, the developmental instruction offered in the classroom. A student is first enrolled on the computer at a grade level based on teacher judgment. The teacher decides on the composite level of functioning by taking into consideration each student's standardized test score as well as his present and past performance. After 10 lessons, the computer refines the teacher's diagnosis by pinpointing the student's level of performance in each subskill area. The computer continuously evaluates student performance. This instantaneous feedback promotes learning since the child does not have to wait until his paper is graded to find out if his answers are right or wrong.

**Benefits to the student are:**

- ONE-TO-ONE INSTRUCTION--the computer serves as an individual tutor.
- IMMEDIATE REINFORCEMENT--the student gets feedback instantly.
- NOVELTY--interaction with the computer is highly motivational.
- CONTINUOUS PROGRESS INSTRUCTION--each student can progress at his own rate of learning.
- PRIVACY--the student can make mistakes without fearing peer ridicule.

**Benefits to the teacher are:**

- CONTINUOUS ASSESSMENT--the teacher receives assistance in diagnosing skill deficiencies.
- RECORD KEEPING--the computer maintains efficient records that help in monitoring pupil progress.
- PRESCRIPTIVE INSTRUCTION--exercises that are appropriate to each student's needs are provided.
- MANAGEMENT--computerized reports can be used to help the teacher with instructional grouping.

# How Does It Individualize?



Each CAI course is divided into subskill areas called "strands". There are 14 strands in math, 6 in reading and 8 in language arts. Each strand is composed of a series of drill exercises sequenced in a hierarchy of increasing difficulty. In any given session on the terminal, the student may perform exercises in one or more strands, depending on his skills at that point in time. The selection of strands and exercises is made by the computer program which analyzes the student's ability based on his performance in the program. Each student in the CAI lab will probably be working at a different instructional level.

At any given time, the computer will mix strands according to the student's needs. Drill can be provided in a specific skill area or in many areas in a distributed practice fashion. The student may be working at the 2.5 grade level in fractions but at the 3.1 level in multiplication. It is possible for a student to be working at a different level in each strand in every subject.

## READING

| Strands | Grade Level Span |
|---|---|
| Basic Sentences | 2.5 - 3.4 |
| Word Attack | 3.5 - 6.9 |
| Vocabulary | 3.5 - 6.9 |
| Literal Comprehension | 3.5 - 6.9 |
| Interpretive Comprehension | 4.0 - 6.9 |
| Work-Study Skills | 3.5 - 6.9 |

## LANGUAGE ARTS

| Strands | Grade Level Span |
|---|---|
| Principal Parts of Verbs | 3.0 - 6.9 |
| Verb Usage | 3.0 - 6.9 |
| Subject-Verb Agreement | 3.0 - 6.9 |
| Pronoun Usage | 3.0 - 6.9 |
| Possessives, Contractions, Negatives | 3.0 - 6.9 |
| Modifiers | 4.0 - 6.9 |
| Sentence Structure | 3.5 - 6.9 |
| Mechanics | 3.0 - 6.9 |

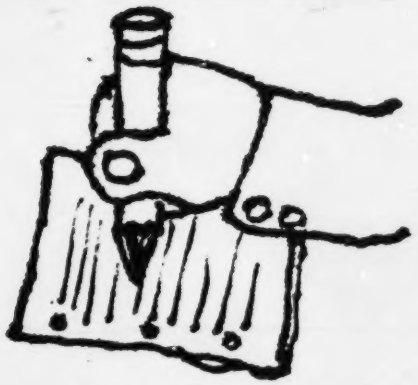
## MATH

| Strands | Grade Level Span |
|---|---|
| Number Concepts | 1.0 - 7.9 |
| Horizontal Addition | 1.0 - 4.4 |
| Horizontal Subtraction | 1.6 - 4.4 |
| Vertical Addition | 1.5 - 5.8 |
| Vertical Subtraction | 1.6 - 5.8 |
| Equations | 2.0 - 7.9 |
| Measurement | 2.0 - 7.8 |
| Horizontal Multiplication | 2.6 - 5.8 |
| Laws of Arithmetic | 3.0 - 6.8 |
| Vertical Multiplication | 3.5 - 7.8 |
| Division | 3.5 - 7.8 |
| Fractions | 4.0 - 7.9 |
| Decimals | 4.0 - 7.9 |
| Negative Numbers | 6.0 - 7.9 |

Each student spends 10-20 minutes per day on the terminal. Students working 20 minutes would be enrolled in two curriculum areas. Although this may seem insignificant, the computer's speed makes this short session highly concentrated. In one year of CAI instruction at 10 minutes per day, a mathematics student, for example, will have worked the equivalent of *all* the problems in the typical math textbook!

* * * *
To err is human, but when
the eraser wears
out ahead of the pencil,
you're overdoing it.
* * * *

**Implementing this program requires some administrative decisions:**



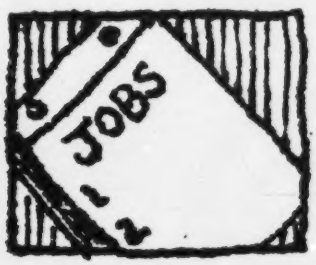
- What criteria will be used to determine student eligibility?
- What course packages will be selected?
- Which campuses are most needful of the programs?
- What equipment options will be most beneficial?
- Where will the installation(s) be located?
- How many terminals will be needed?
- Who will be responsible for managing the labs?

**Consideration needs to be given to the impact of the program on the roles of the people who will be involved with it:**

- Central office administrators directly involved in the district's instructional program
- Federal programs director/CAI coordinator
- Building administrators
- Supervisors
- Counselors
- Instructional specialists
- Classroom teachers
- Teacher aides or proctors

# Responsibilities

It is important that each individual know his responsibilities with respect to this program. Role delineation helps promote better accountability. The duties of each person should be defined as in the following example:




## PRINCIPAL

- Provides leadership in planning and implementing the program
- Works with the counselor and coordinator in identifying eligible students
- Monitors the operation and management of the CAI lab
- Studies statistical reports and makes program modifications indicated
- Monitors student attendance to assure that terminals are being fully utilized.

## PROCTOR (Teacher Aide)

- Assists students working at the terminals
- Operates the CAI lab
- Reports equipment malfunctions
- Produces reports for teachers and administrators on a weekly basis
- Maintains attendance records and provides exception reports to the administrator
- Enrolls students and assigns identification numbers
- Maintains discipline in the CAI lab.

## TEACHER

- Sends participating students to the CAI lab on time
- Makes use of daily and weekly reports in assessing pupil performance
- Becomes familiar with the program so that he can better utilize it as a supplementary tool

## DIRECTOR/COORDINATOR/ SUPERVISOR

- Oversees site preparation for all new installations
- Serves as liaison with classroom teacher in communicating information about student performance
- Analyzes difficulties students are having with the program
- Orders supplies needed from Region IV
- Orients visitors to the CAI lab
- Serves as contact person in planning for staff development
- Prepares evaluation design and monitors pupil progress.

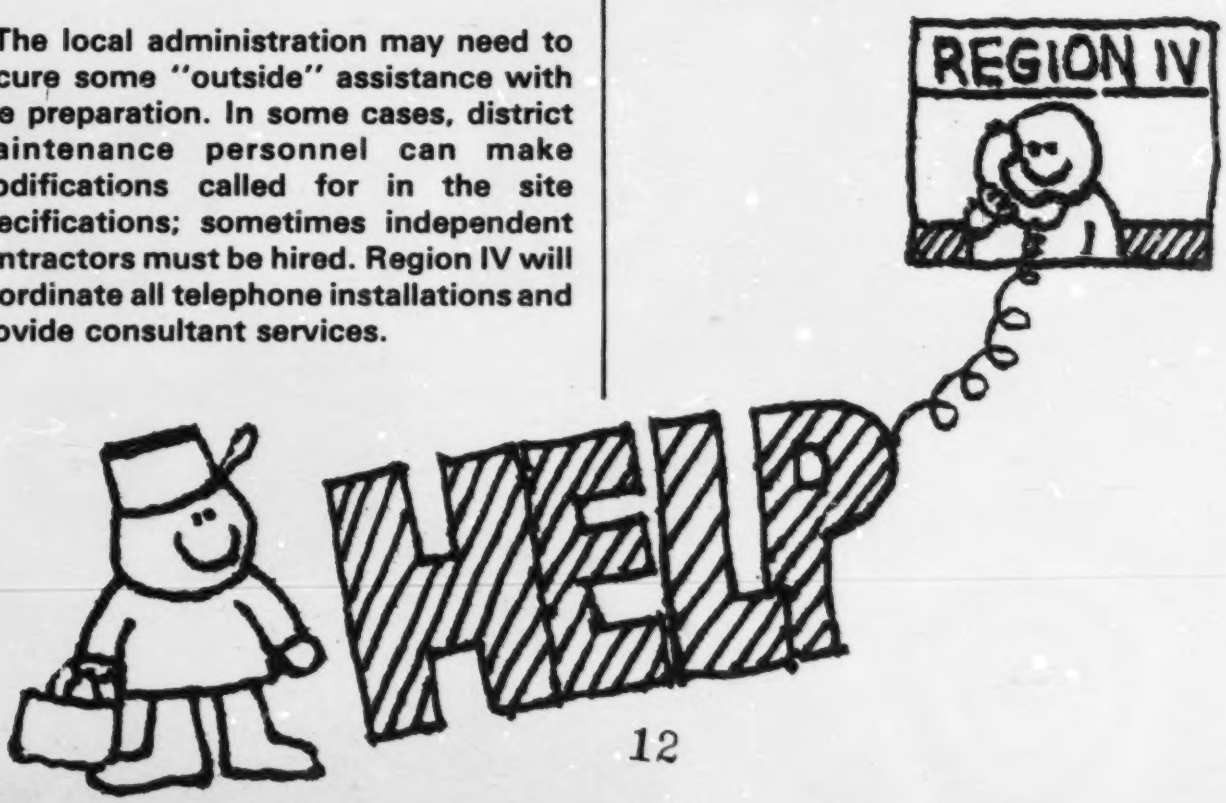
# Where Should The CAI Lab Be Located? 8

It is best to separate the CAI terminals from other classrooms. Because of the electrical power demands, some rewiring may be necessary in the CAI room. For this reason it is advantageous to situate the CAI laboratory close to the building's original power supply.

* * * *
Sattinger's Law:
It works better if you plug it in.
* * * *

Computer Curriculum Corporation will perform an on-site study of space and other requirements.

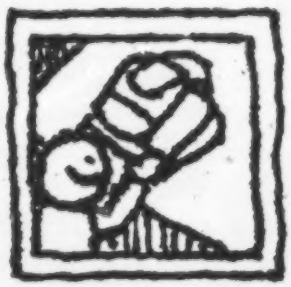
The local administration may need to secure some "outside" assistance with site preparation. In some cases, district maintenance personnel can make modifications called for in the site specifications; sometimes independent contractors must be hired. Region IV will coordinate all telephone installations and provide consultant services.



# Which Terminals? 9

There are two types of terminals--teletypewriter terminals (TTY) and video display terminals (cathode ray tube or CRT). Each has advantages and disadvantages.

**The teletypewriter . . .**



- provides a hard copy printout of each child's performance each day
- costs less to lease
- presents drill exercises at a slower rate of speed
- may create distraction because it is noisier
- requires that paper and ribbon be changed periodically.

**The video display (CRT) terminal . . .**

- requires less maintenance
- provides speedy presentation and response
- emits no sound
- requires the changing of paper and ribbon only on terminals with optional hard copy printers
- provides no hard copy printout for students
- requires at least one hard copy printer for report production
- costs more to lease

# Student Scheduling



One potential trouble spot is the scheduling of students. The principal must be responsible for executing the schedule. Every effort should be made to avoid conflicts with regular classes in reading and math. As with any activity that takes students from a regular class, there may be teachers who are uncooperative with the tight scheduling necessary for efficient operation of the CAI laboratory. The importance of a student's being on time and regular in attendance must be impressed on each teacher with students in the program. Teacher cooperation is extremely valuable because the program is designed to correlate with classroom instruction.

Fifteen minutes should be allowed for each ten minute session. This allows five minutes of travel time to and from class. Research supports the effectiveness of short sessions because task involvement is intense and attention span is high. The short session also allows a greater number of students to be served than any traditional remedial program.

# Student Attendance



The need for maximum cost effectiveness requires that student attendance be closely monitored. The proctor should maintain attendance records which indicate on a simple form the names of teachers and the number of students who have not come to the CAI lab at the prescribed time. This information can be transmitted to the principal at the end of each week so teachers can be notified. A notice might be placed in a teacher's box as a reminder that too many of her students have been tardy or have completely missed their CAI lessons.

A list of alternate CAI students should be maintained. These students should be enrolled on the computer and familiarized with the terminals. If a regularly enrolled student is absent, the teacher can send an alternate to the CAI lab. Teachers should make arrangements with the curriculum coordinator or proctor in scheduling extra computer sessions for those students who need them.

* * * *
Life is now in session.
Are you present?
* * * *

The principal should also look for alternative times to use the terminals. Consideration might be given to using them before and after school, on weekends, during dead periods of the school day, and in the evenings.

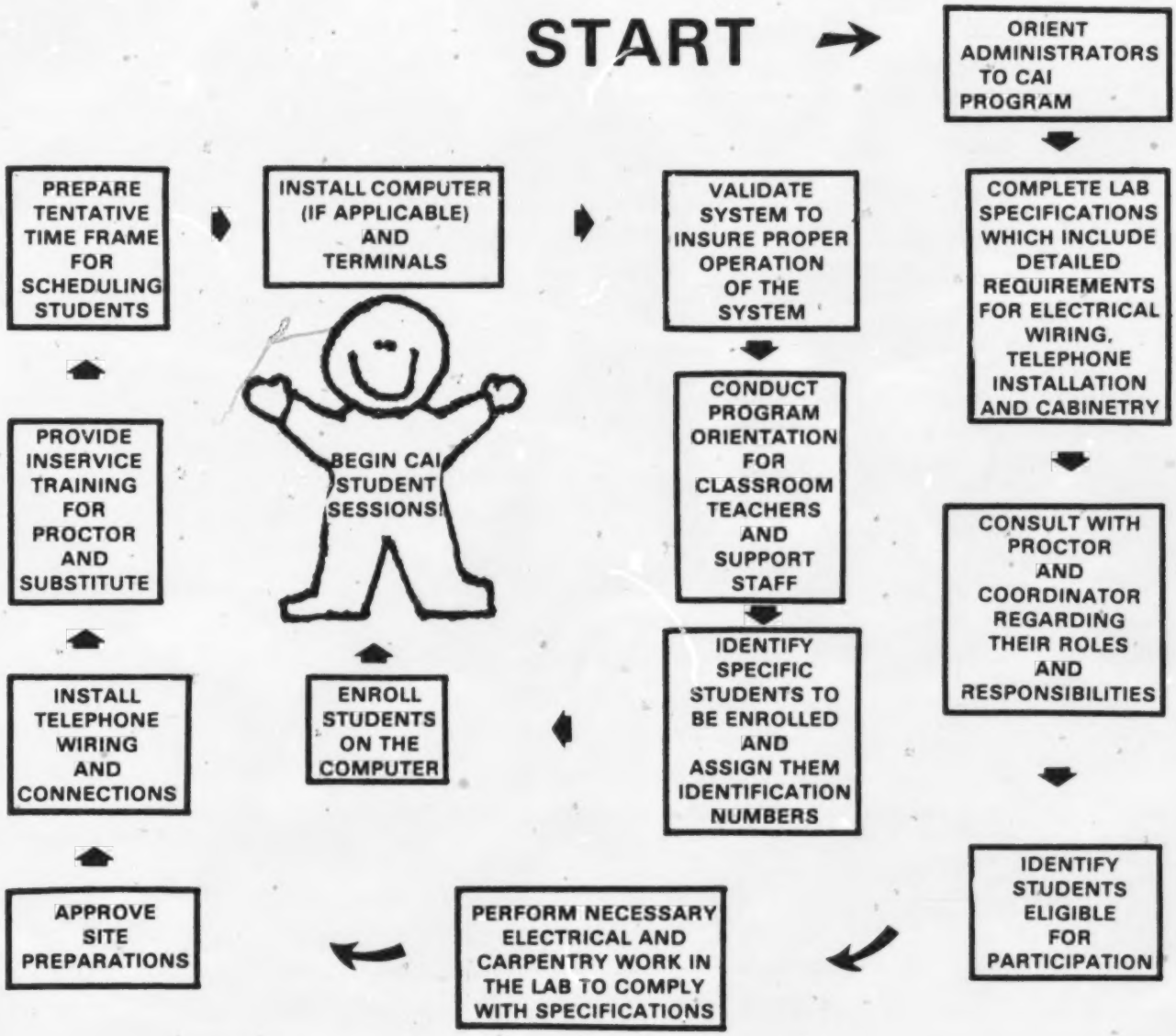
Such utilization will allow:

- additional work for those students who need it
- a different set of eligible students
- a different achievement group
- the use of different types of curriculum such as GED preparation and the adult basic education curriculum.

# Orientation For Administrators



It is *critical* that administrators and support staff have a clear understanding of the CAI program before it is initiated. There are many steps in preparing for a CAI laboratory. Installation of the equipment must be preceded by careful planning. An awareness workshop will be conducted by Region IV to provide central office administrators, building principals and administrators with an overview of the CAI program.


START
ORIENT ADMINISTRATORS TO CAI PROGRAM
COMPLETE LAB SPECIFICATIONS WHICH INCLUDE DETAILED REQUIREMENTS FOR ELECTRICAL WIRING, TELEPHONE INSTALLATION AND CABINETRY
CONSULT WITH PROCTOR AND COORDINATOR REGARDING THEIR ROLES AND RESPONSIBILITIES
IDENTIFY STUDENTS ELIGIBLE FOR PARTICIPATION
PERFORM NECESSARY ELECTRICAL AND CARPENTRY WORK IN THE LAB TO COMPLY WITH SPECIFICATIONS
APPROVE SITE PREPARATIONS
INSTALL TELEPHONE WIRING AND CONNECTIONS
PROVIDE INSERVICE TRAINING FOR PROCTOR AND SUBSTITUTE
PREPARE TENTATIVE TIME FRAME FOR SCHEDULING STUDENTS
INSTALL COMPUTER (IF APPLICABLE) AND TERMINALS
VALIDATE SYSTEM TO INSURE PROPER OPERATION OF THE SYSTEM
CONDUCT PROGRAM ORIENTATION FOR CLASSROOM TEACHERS AND SUPPORT STAFF
IDENTIFY SPECIFIC STUDENTS TO BE ENROLLED AND ASSIGN THEM IDENTIFICATION NUMBERS
ENROLL STUDENTS ON THE COMPUTER
BEGIN CAI STUDENT SESSIONS!

Once the administration has committed the district to CAI, teachers need to be oriented to the program. Region IV will provide inservice designed to inform teachers about:

- ways CAI can help them better individualize instruction
- curriculum offerings and the organization of the strands within each subject area
- optimum arrangements for scheduling and identification of eligible students
- research results that substantiate benefits to students
- report products that will keep teachers abreast of pupil progress.

Usually an orientation to the CAI program will take about two hours. It will include some "hands-on" experience with the computer terminals. Teachers need an opportunity to work through several lessons and produce reports that summarize their progress. By experiencing the program first-hand, they can gain some appreciation for the demands the program will make of their students.

Within 6-8 weeks after the program has been initiated, a more comprehensive teacher inservice is recommended. This 3-6 hour session is designed to familiarize teachers with the computerized curriculum and how it relates to the developmental program being employed in the classroom. Attention is given to:

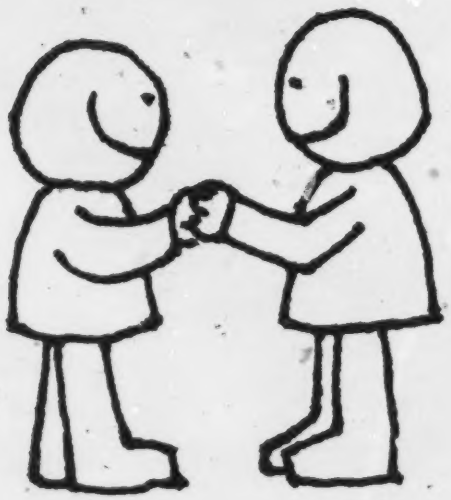
- strategies for making use of the students' daily printouts
- use of the computer-generated reports for flexible skill grouping
- correlation of the supplementary instruction in the lab with the work that is done in the classroom
- simulations that provide practice in using the teacher manual.

# Public Relations



A public relations program for the community is necessary as with any new curriculum approach. Any news release to the press should come from the central administration offices. Region IV can provide assistance in executing this aspect of public relations. Once the CAI program is operating smoothly, presentations might be made to various groups:

- school board
- parent advisory council
- parent teachers association
- civic organizations.



Region IV has a 17 minute slide-tape presentation entitled *I Was a Spy for the CAI (or Mr. Zelpps Investigates Computer Assisted Instruction)* which might be used for orientation purposes. Some groups might enjoy visiting the school and going "on-line" with the computer.

# What Support Services Are Available? 15

Region IV serves as contracting agency between the school district and Computer Curriculum Corporation. In this role Region IV can support the district with the following services:

- assistance in making applications for federal funds to support a CAI program
- inservice training in the operation and management of the program for administrators, teachers, curriculum specialists, and aides
- coordination of installation of equipment including local site preparation and telephone wiring
- ongoing consultant assistance with curriculum and overall operation, management, and evaluation of the program
- supplies including teletypewriter paper and ribbon
- statistical reports for administrative analysis of the program.

Liaison to CCC services:

- installation and maintenance of computer hardware
- technical assistance for proctors
- WATS line for reporting problems.

# Current Users

At the present time the following school districts have contracted with Region IV to provide CAI in their schools:

**BRYAN INDEPENDENT SCHOOL DISTRICT**
- Lamar Elementary School
- Carver-Kemp Elementary School
- Jones Junior High School

**DICKINSON INDEPENDENT SCHOOL DISTRICT**
- McAdams Junior High School
- Bacliff Elementary School
- Dunbar Elementary School

**TEXAS CITY INDEPENDENT SCHOOL DISTRICT**
- Kohfeldt Elementary School
- Fry Junior High School

**LA MARQUE INDEPENDENT SCHOOL DISTRICT**
- La Marque Intermediate School

**CYPRESS-FAIRBANKS INDEPENDENT SCHOOL DISTRICT**
- Bane Elementary School

**PORT ARTHUR INDEPENDENT SCHOOL DISTRICT**
- Franklin Elementary School
- Dowling Elementary School

**BRIDGE CITY INDEPENDENT SCHOOL DISTRICT**
- Hatton Elementary School
- Sims Elementary School

**BEAUMONT INDEPENDENT SCHOOL DISTRICT**
- Beaumont School for the Deaf

**HOUSTON INDEPENDENT SCHOOL DISTRICT**
- Dow Elementary School
- Bruce Elementary School
- Fairchild Elementary School
- Foster Elementary School
- Franklin Elementary School
- Ross Elementary School
- De Zavala Elementary School
- Chatham Elementary School
- Concord Elementary School
- Burrus Elementary School
- Lantrip Elementary School
- Booker T. Washington Junior-Senior High School
- M. C. Williams Senior High School

**HITCHCOCK INDEPENDENT SCHOOL DISTRICT**
- Crosby Intermediate School

**LAMAR CONSOLIDATED INDEPENDENT SCHOOL DISTRICT**
- Crockett Intermediate School
- Jackson Intermediate School

REGION
6
REGION
5
REGION
4